REMARKS

This responds to the Office Action mailed on June 23, 2005.

Claims 1, 15 and 22 are amended, claims 31-33 are canceled, and no claims are added; as a result, claims 1-30 are now pending in this application.

The Applicants respectfully request reconsideration and entry of the subject amendment. The subject amendment is believed timely, since the Applicants pursued a good faith belief in their previous responses to overcome the 35 USC 112 rejection; claims have been cancelled; and previous arguments in the prior response to the first Office Action may have misunderstood. Further, this amendment is believed timely since this amendment does not present a new issue requiring further research.

§112 Rejection of the Claims

Claims 1-33 were rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement.

The Office Action indicated that the function is performed by a "reduced alphabet determination unit" element 14 of FIG. 1 and the Applicant fails to disclose how this determination is made. This element is included in each of the base claims in various forms.

As indicated in the Applicant's specification at page 3, line 28 and following to page 4, line 11, "The equalization system 10 uses an iterative equalization approach. In a first iteration, the reduced complexity equalizer 12 processes the communication signal in a known manner. The reduced complexity equalizer 12 is less complex than a full-state, full-alphabet MLSE equalizer would be for the same communication channel. As will be appreciated, many different reduced complexity equalization schemes are available. The reduced complexity equalizer 12 generates an output signal that is delivered to the reduced alphabet determination unit 14. In one approach, for each input symbol within the communication signal, the reduced alphabet determination unit 14 identifies a subset of symbols from the full alphabet that are more likely than other symbols to be the actual transmitted symbol. The reduced alphabet determination unit 14 does this based on the

output of the reduced complexity equalizer 12. The subset of symbols identified by the reduced alphabet determination unit 14 is referred to as the reduced alphabet." The functional operation of element 14 is believed described in sufficient detail and specificity in the specification above and the drawing figures to per permit one of ordinary skill in the art to make the element 14. At page 428, column 2, paragraph 3, the Duel-Hallen reference mentions the problem of "large input alphabet sizes". Further, at page 429, column 1, last paragraph, in order to detect and reduce the alphabet, "two filters may be used, an equalizer and a feedback filter, chosen to eliminate all ISI..." A suggestion of the details for accomplishing the Applicants element is shown in the Duel-Hallen of May, 1989.

Further, with regard to the Applicant's element 16, a reduced alphabet MLSE equalizer, the Applicant's specification indicated at page 4, lines 12-27, that "The reduced alphabet determination unit 14 delivers the reduced alphabet to the reduced alphabet MLSE equalizer 16 which then processes the communication signal based on the reduced alphabet. In a preferred approach, the reduced alphabet MLSE equalizer 16 is a full-state MLSE equalizer (i.e., it has a length comparable to the memory length of the channel). However, instead of testing the communication signal for all possible symbols in the full alphabet, the reduced alphabet MLSE equalizer 16 only checks the symbols in the reduced alphabet (e.g., it only evaluates trellis paths corresponding to the symbols within the reduced alphabet), thus reducing the overall complexity of the MLSE considerably. The reduced alphabet MLSE equalizer 16 then outputs the symbol from the reduced alphabet that most likely represents the corresponding transmitted symbol. In a preferred implementation, the combined complexity of the reduced complexity equalizer 12 and the reduced alphabet MLSE equalizer 16 is significantly less than the complexity of a comparable full-state, full-alphabet MLSE equalizer. In addition, in at least one embodiment, the symbol error rate performance of the equalization system 10 approaches that of the full-state, full-alphabet MLSE equalizer." Again, the Applicant believes that element 16 is defined with sufficient specificity to enable one or ordinary skill in the art to produce the element 16, since at page 428, column 1, paragraph 4, of the Duel-Hallen reference, it is indicted that the Viterbi algorithm may be used and the complexity of the [Viterbi] algorithm is proportional to the number of states in

the trellis. Since here the Applicant claims a reduced set (state) alphabet in the trellis, a simpler trellis is produced using the reduced alphabet. Therefore, in these conditions of the claims, the Viterbi algorithm may serve as reduced alphabet MLSE equalizer.

As a result, each of the elements of the Applicant's base claims is believed defined with the required specificity under the law. Accordingly the Applicants requests, removal of the 35 USC 112, first paragraph rejection.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney, Frank Bogacz, at (480) 361-7740 or the undersigned at (612) 349-9592 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By his Representatives,

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Date Aug. 23, 2005

By Ann M. McCrackin
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23 day of August 2005.

John D. Gustav-Wrathall
Name

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